

## COUPLER ADD/DROP NODE NETWORK ARCHITECTURE WITH PERIODIC CLEANUP

### Abstract of the Disclosure

5           A efficient and inexpensive optical WDM network architecture with add and drop couplers. Add couplers and drop couplers connected to a network optical fiber with wavelength blocker units which filter out optical signals at selected wavelengths on the optical fiber. The wavelength blocker units are distributed among the add and drop couplers so that each segment of the optical fiber between pairs of neighboring  
10 wavelength blocker units has at least three add and drop couplers. More specifically, each segment has the following relationship:

$$\text{THRU} + \text{ADD} + \text{DROP} + \text{LOCAL} \leq \text{TOTAL}$$

where THRU is the number of channels passing through the segment; ADD is the number of channels added within the segment; DROP the number of channels dropped within the  
15 segment; LOCAL the number of channels confined within the segment; and TOTAL is the total capacity of the optical fiber.